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**Psychological characteristics of early-stage melanoma patients:
a cross-sectional study on 204 patients**

Running heading: Psychological characteristics of early-stage melanoma

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Abstract

Background: The presence of psychological distress has a negative impact not only on cancer patients' quality of life, but also on the course of the disease, with slower recovery and increased morbidity. These issues are of particular importance in melanoma patients (MP), who remain at risk of disease progression for many years after diagnosis.

Objectives: To investigate psychological distress, coping strategies and their possible relationships with demographic-clinical features in patients with early-stage melanoma in follow-up. The investigation focused in particular on whether the psychological profile was different between patients at different melanoma stages.

Methods: Data of 118 patients with melanoma in Tis-Ia stages (MP Tis-Ia) and 86 patients with melanoma in stages Ib-IIa-IIb (MP Ib-II) was recruited and compared by means of a cross-sectional design.

Results: The results evidenced a high percentage of anxiety (25%) and distress symptoms (44%), while depressive symptoms seemed less frequent (8%).

Psychological distress was higher in women than in men, and in patients with a higher educational level. Nevertheless, no significant differences between MP_Tis-Ia and MP_Ib-II were found. With regard to coping style, the patients in this sample adopted predominantly positive and active strategies. Correlational analyses showed that maladaptive coping strategies such as behavioral disengagement, denial, self-distraction and self-blame were most strongly related to increased levels of psychological distress.

Conclusions: The high presence of anxiety and distress symptoms, their relationship, and the use of negative coping strategies underline the importance of psychological distress screening also in early-stage melanoma patients, including at long-term follow-up.

Keywords: Melanoma, Psychological Distress, Depression, Anxiety, Coping strategies.

Introduction

The incidence of cutaneous melanoma, the fastest-growing solid tumor that accounts for more than 79% of skin cancer-related deaths, has increased dramatically in the Western world [1,2]. In particular, although 5 years' survival is high with the early stages of melanoma (more than 96% in situ and 92% in stage I), the percentage falls drastically to 67% in stage II and to 49% in stage III [3,4]. What is more, patients with melanoma remain at risk of disease progression for many years [5]. Early diagnosis and continued adherence by the patient to follow-up examinations are therefore crucial.

The presence of psychological distress has a negative impact not only on cancer patients' personal and social quality of life, but also on the course of the disease, with slower recovery and increased morbidity [1,6-8]. In particular, distress present at follow-up may interfere with preventive behaviours (i.e. using sunscreen or avoiding sunlight) or adherence to prescribed therapy and rigorous periodic screening (i.e., regular skin examinations, appointments with dermatologists) [5,9]. These issues are of particular importance in melanoma patients (MP), who remain at risk of disease progression for many years after diagnosis [10]. Most studies on psychological distress in melanoma patients have been conducted on those at advanced stages, whereas few have addressed the issue in those at early stages [1,11,12].

The present study focused on the psychological distress, the coping strategies and their possible relationships with demographic-clinical features of early-stage melanoma patients. In addition, investigation focused on whether the psychological profile was different between patients at Tis-Ia (MP_Tis-Ia) and Ib-II (MP_Ib-II) melanoma stages. Since MP_Ib-II patients have undergone a second, more invasive surgery for sentinel lymph node biopsy and are commonly required to submit to a more thorough follow-up examination with more radiological analyses, it was hypothesized that the medical follow-up could be more distressing for them than for MP_Tis-Ia patients'.

Methods

The present study was conducted by means of a cross-sectional design. Patients consecutively attending the Department of Surgical Dermatology at the “Città della Salute e della Scienza” Hospital of Turin for dermatologic follow-up examinations and fulfilling the inclusion criteria were included in the study. The inclusion criteria were: diagnosis of melanoma in situ (stage Tis), in stages Ia, Ib, IIa and IIb, age over 18 and the ability to read and understand questionnaires. Of the 208 consecutive patients fulfilling the inclusion criteria, 204 patients gave their written consent and were enrolled. The study was approved by the Hospital Ethics Committee.

To evaluate the psychological distress, the Hospital Anxiety and Depression Scale for depressive (HADS-D) and anxiety (HADS-A) symptoms and the Distress Thermometer (DT) for emotional distress were used [13,14]. The Coping Orientation to Problem Experiences Scale-brief version (Brief-COPE) was administered to evaluate: Positive reframing, Self-distraction, Expression, Instrumental support, Active coping, Denial, Religion, Humour, Behavioural-disengagement, Emotional support, Use of alcohol/drugs, Acceptance, Planning and Self-blame [15].

The analyses were performed using the Statistical Package for Social Science - Version 20 (SPSS-20). Normal distribution of the continuous variables was evaluated using the Kolmogorov-Smirnov Test. Comparisons between MP_Tis-Ia and MP_Ib-II groups were performed using the Chi-Square, the T-test or the Mann-Whitney U-Test appropriately. Spearman correlations were used to investigate possible associations. Bonferroni corrections were applied.

Results

Regarding the socio-demographical features, MP_Tis-Ia and MP_Ib-II groups differed significantly only in gender distribution. Contrary to our hypothesis, no statistically

significant differences in psychological distress or coping strategies were found between MP_Tis-Ia and MP_Ib-II patients (**Table 1**). From this point on, the two groups were analyzed together.

While only 8.8% of the patients (18/204) showed a clinically relevant level of depressive symptoms, 25% (51/204) presented a clinically relevant level of anxiety symptoms and 44.1% (90/204) showed relevant distress (DT). The mean scores showed that the most-used coping strategies were acceptance, active coping, planning and positive reframing; less-used strategies were alcohol or drug use, denial and behavioural disengagement (**Table 1**). No significant correlations were found between psychological distress, age and time since diagnosis. A statistically significant higher level of depressive (M: 2.76(3.1); W: 3.69(3); $p=.007$), anxiety (M: 4.1(3.5); W: 5.79(4.4); $p=.007$) and distress (M: 2.97(2.7); W: 3.94(2.8); $p=.013$) symptoms was present in women (W) than in men (M) and a significantly higher level of distress was found in patients with a higher (H) compared to a low/average (L/A) educational level (H: 3.79(2.9); L/M: 2.66(2.5); $p=.010$). Since women were found to report higher levels of psychological distress and in order to ensure that patient group differences in psychological distress would not be obscured by the sex differences, the psychological distress comparisons between MP_Tis-Ia and MP_Ib-II groups were performed again for the male and the female sub groups separately. Results confirmed that in both sub groups no statistically significant differences in psychological distress were present between MP_Tis-Ia and MP_Ib-II patients (all $p > .05$).

Correlations analyses (**Table 2**) showed statistically significant positive correlations between “Self-distraction”, “Denial” and “Behavioural-disengagement” and psychological distress (HADS-D/-A, DT): the higher the psychological distress, the more frequent the use of these coping strategies. In addition, statistically significant positive correlations were found between “Self Blame” and both anxiety and DT, and between “Expression” and DT.

“Positive reframing”, “Acceptance” and “Planning” showed statistically significant negative correlations with depressive symptoms, with higher symptoms in patients using these strategies less. Finally, “Acceptance” showed a statistically significant negative correlation with anxiety symptoms.

Discussion

The Melanoma Guideline strongly recommends lifetime dermatologic surveillance for patients with melanoma [10], who remain at risk of disease progression for many years [5].

The estimated lifetime risk of developing a second primary melanoma ranges between 4 and 8%, with a 5-year estimated cumulative risk rising to 11.4% [16,17]. Melanoma could thus be considered a chronic life-threatening disease [18].

A recent review of the literature highlighted that approximately one-third of melanoma patients experience clinically relevant levels of psychological distress around the time of diagnosis and treatment [19]. Psychological distress in patients with melanoma may have notable personal and family implications for the patients [19]. It has been associated not only with lower quality of life, but also with delay in seeking medical advice and decreased adherence to post-treatment screening and preventive behaviors, which result in increased rates of recurrence and mortality [9]. The majority of these studies, however, did not differentiate between different stages, or focused less on the long-term periodic follow-up screening. In fact, even though most patients with melanoma perceive this crucial event as worthwhile and reassuring, this event may also reactivate cancer-related fears [9].

The main finding of the present study is the high prevalence of anxiety and emotional distress symptoms occurring in patients with early stages melanoma in long-term follow-up, 25% and 44%, respectively. What is more, psychological distress seems to be higher in women than in men, and in patients with a higher educational level.

From a medical point of view, different disease severity means differences regarding long-

term prognosis and follow-up implications [10]. Indeed, if 5 years' survival ranges from 96% to 92% in Tis-Ia stages of melanoma, it decreases to 91-67% in Ib-II stages [3,4]. In addition, patients in Ib-II stages underwent more invasive surgery (such as sentinel lymph node biopsy) and were required to periodically perform more invasive medical screening (ultrasounds, X-ray, CT and RMI) which could contribute to enhanced psychological distress levels. Nevertheless, no significant differences between MP_Tis-Ia and MP_Ib-II were found in psychological distress variables. Patient group differences in psychological distress was not obscured by the sex differences.

In fact, even if women were found to report higher levels of psychological distress and in spite of the difference in sex distribution, no differences in the mean levels of psychological distress had been found between female patients in Tis-Ia and female patients in Ib-II or between male patients in Tis-Ia and male patients in Ib-II.

This result suggests that the underlying fear of disease recurrence/metastasis may be the main factor behind the increased prevalence of distress in patients attending their scheduled visit, independently of disease stage, as suggested by Loquai and colleagues [12].

One variable demonstrating a close relationship with psychological distress is coping ability. Melanoma patients in this sample adopted predominantly positive and active strategies, and this was associated with lower levels of psychological distress. Furthermore, in line with the literature [19], maladaptive responses as displayed through behavioral disengagement, denial, self-distraction and self-blame were most strongly related to increased levels of psychological distress.

In conclusion, the main finding of the present study is that emotional distress is highly present in patients with early-stage melanoma, especially women, including at long-term follow-up. In addition, the psychological distress seems to be highly associated with a maladaptive coping style. These results highlight the need for regular psychological distress

screening in all phases of cancer care.

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Table 1. Socio-demographic and clinical data of the whole sample (T-Sample: N=204) and comparison between the MP_Tis-Ia (N=118) and the MP_Ib-II (N=86) groups.

		T-Sample	MP_Tis-Ia	MP_Ib-II	p
Age (Mean (SD)) ^a		53.1 (13.1)	52.9 (13.7)	53.3 (12.2)	.84
Age at diagnosis (Mean (SD)) ^a		49.2 (13.0)	48.8 (13.5)	49.8 (12.4)	.61
Time since diagnosis (Mean (SD)) ^b		46.8 (40.5)	49.8 (45.6)	42.7 (32.1)	.99
Gender N (%) ^c	<i>Male</i>	96 (47.1%)	46 (39.0%)	50 (58.1%)	.007
	<i>Female</i>	108 (52.9%)	72 (61.0%)	36 (41.9%)	
Educational level N (%) ^c	<i>Low/average</i>	57 (28.1%)	31 (54.4%)	26 (45.6%)	.56
	<i>High</i>	146 (71.9%)	86 (58.9%)	60 (41.1%)	
Work status N (%) ^c	<i>Employed</i>	129 (63.2%)	73 (61.9%)	56 (65.1%)	.63
	<i>Unemployed</i>	75 (36.8%)	45 (38.1%)	30 (34.9%)	
Marital status N (%) ^c	<i>Married</i>	160 (78.4%)	93 (78.8%)	67 (77.9%)	.88
	<i>Unmarried</i>	44 (21.6%)	25 (21.2%)	19 (22.1%)	
Psychological distress (Mean (SD)) ^b	<i>HADS-D</i>	3.25 (3.1)	3.37 (3.2)	3.09 (3.1)	.52
	<i>HADS-A</i>	5.00 (4.1)	5.16 (4.3)	4.77 (3.8)	.66
	<i>DT</i>	3.48 (2.8)	3.65 (2.9)	3.35 (2.6)	.41
Coping Strategies: Brief-COPE (Mean (SD)) ^b	<i>Positive reframing</i>	5.82 (1.9)	5.86 (1.9)	5.75 (2.0)	.73
	<i>Self-distraction</i>	4.60 (2.1)	4.58 (2.1)	4.62 (2.1)	.95
	<i>Expression</i>	4.83 (1.8)	4.99 (1.8)	4.61 (1.7)	.13
	<i>Instrumental support</i>	5.19 (1.9)	5.27 (2.0)	5.07 (1.8)	.43
	<i>Active coping</i>	6.73 (1.7)	6.82 (1.5)	6.60 (1.9)	.98
	<i>Denial</i>	2.72 (1.3)	2.74 (1.3)	2.69 (1.2)	.64
	<i>Religion</i>	4.94 (2.2)	4.86 (2.2)	5.06 (2.2)	.52
	<i>Humour</i>	4.16 (1.7)	4.20 (1.7)	4.09 (1.6)	.64
	<i>Behavioural-disengagement</i>	2.87 (1.3)	2.86 (1.2)	2.87 (1.4)	.57
	<i>Emotional support</i>	4.53 (1.9)	4.83 (2.1)	4.11 (1.8)	.015
	<i>Use of alcohol/drugs</i>	2.06 (0.5)	2.10 (0.6)	2.01 (0.1)	.31
	<i>Acceptance</i>	7.02 (1.4)	6.99 (1.4)	7.06 (1.4)	.75
	<i>Planning</i>	6.63 (1.8)	6.68 (1.6)	6.55 (1.9)	.90
	<i>Self-blame</i>	5.22 (1.7)	5.33 (1.7)	5.07 (1.7)	.23

^a T-test; ^b Mann-Whitney U-Test; ^c Chi-Square Test.

HADS-D: depression subscale of the Hospital Anxiety and Depressive Scale;

HADS-A: anxiety subscale of the Hospital Anxiety and Depressive Scale;

DT: Distress Thermometer.

Table 2: Correlations between psychological distress variables and coping strategies.

	HADS-D	HADS-A	DT
<i>Positive reframing</i>	-0.200*	-0.141	-0.050
<i>Self-distraction</i>	0.311**	0.363**	0.352**
<i>Expression</i>	0.056	0.152	0.231*
<i>Instrumental support</i>	-0.042	0.071	0.029
<i>Active coping</i>	-0.085	-0.015	0.048
<i>Denial</i>	0.249**	0.288**	0.163*
Brief- COPE <i>Religion</i>	0.044	0.107	-0.05
<i>Humour</i>	-0.091	-0.046	-0.036
<i>Behavioural-disengagement</i>	0.325**	0.217*	0.253**
<i>Emotional support</i>	0.075	0.159	0.165
<i>Use of alcohol/drugs</i>	0.098	0.089	0.137
<i>Acceptance</i>	-0.200*	-0.176*	-0.146
<i>Planning</i>	-0.187*	-0.094	-0.003
<i>Self-blame</i>	0.148	0.278**	0.184*

* $p < .017$; ** $p < .001$

Spearman's correlation coefficients are listed.

Brief-COPE: Coping Orientation to Problem Experiences Scale-brief version;

HADS-D/-A: Hospital Anxiety and Depressive Scale – Depression/Anxiety subscale;

DT: Distress Thermometer.